

ABSTRACT

[0048] A micro component steam reformer system for producing hydrogen-enriched gas to power a fuel cell adapted for scalable power requirements. The steam reformer system uses a cycle in which, in laminar flow modules, a vaporized hydrocarbon is mixed with fuel cell off gas having a hydrogen component and combusted to heat vaporizers and a steam reformer. Vaporized hydrocarbons and water vapor are introduced as a feed stock into the steam reformer to produce a syn-gas, which is cooled and purified. The resulting principally hydrogen gas may be introduced into a hydrogen fuel cell. Off gas from the fuel cell is recycled to provide hydrogen and water for use in the system cycle.